

CIVIL DEFENCE



Canada - Civil Defence
Civil Defence - Canada

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CIVIL DEFENCE

Bulletin



July - Aug 1958

No 73

3 1761 07551933 0

NATIONAL
CIVIL
DEFENCE
DAY



FRIDAY
SEPT. 19th
1958

Department of National Health and Welfare
OTTAWA

U.S. - CANADA ADVANCE JOINT CIVIL DEFENCE PLANNING

Plans to ensure the continuity of government on both sides of the border in an international emergency; technical developments in the provision of shelter against radioactive fallout, and practical applications of the "no border policy" were discussed during the sixth meeting of the Joint United States - Canada Civil Defence Committee held in Ottawa on 28th May.

Governor Leo A. Hoegh, Administrator for Civil Defense in the United States and the Hon. J. Waldo Monteith, Minister of National Health and Welfare and federal cabinet Minister responsible for Civil Defence in Canada, were co-chairmen of the meeting. Established in 1951, the Committee insures that Civil Defence activities in both nations are co-ordinated for the best possible protection of persons and property in the event of enemy attack.

Other topics reviewed during the meeting included the co-ordination of broadcasting procedures during an emergency and the operation of survival planning and test exercises. A realignment of the committee with a view to establishing closer liaison and improvements in joint planning was also taken into consideration.

Besides Governor Hoegh, United States delegates to the meeting included L. E. Berry, Jr., Deputy Administrator; P. C. Baldwin, General Counsel; E. Quindlen, Assistant Administrator, Operations; E. B. Lyman, Assistant Administrator, Special Activities and Miss Henrietta Parker, United States Committee Executive Secretary. Canadian committee members in addition to Mr. Monteith were G. F. Davidson, Deputy Minister of Welfare; G. S. Hatton, Deputy Federal Civil Defence Co-ordinator; R. B. Bryce, Clerk of Privy Council and Secretary to the Cabinet; R. E. Curran, Departmental Legal Advisor, and M. P. Cawdron, Canadian Committee Executive Secretary.

In a joint statement, Governor Hoegh and Mr. Monteith said that the sixth meeting of the United States - Canada Civil Defence Committee had done much to further advance mutual plans and procedures for civilian protection of both countries in the event of an international emergency.

Since the formation of the Committee in 1951 a great deal of progress has been made in Civil Defence thinking to coincide with the scientific developments of nuclear weapons, said the joint chairmen.

U.S. - CANADA JOINT CIVIL DEFENCE



Representatives attending the Joint United States - Canada Civil Defence Committee Meeting are seen here being addressed by Governor Leo A. Hoegh, Administrator for Civil Defense in the United States.



The Hon. J. Waldo Monteith, Minister of National Health and Welfare acted as co-chairman for the Joint United States - Canada Civil Defence Committee. Seen with Mr. Monteith are: (L. to R.) L.E. Berry, Jr. Deputy Civil Defence Administrator (U.S.A.); Governor Leo A. Hoegh, Civil Defence Administrator (U.S.A.); Mr. Monteith, and Dr. G.F. Davidson, Deputy Minister (Welfare), Department of National Health and Welfare.

They added that Civil Defence survival plans, emphasizing evacuation of target cities, dispersal of population and the need for refuge or shelter protection from radioactive fallout, constitute still the surest means of survival in a nuclear war. It was pointed out that the inter-continental Ballistic Missile is still some years in the future as a practical weapon but that civil defence planning must keep pace with its development.

The last meeting of the Committee was held in October, 1956, at United States Civil Defense Headquarters in Battle Creek, Mich. The seventh meeting will be held in 1959, with the United States authorities acting as hosts.

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GOVERNMENT ENQUIRY INTO CIVIL DEFENCE POLICY

The Minister of National Health and Welfare, the Hon. J. Waldo Monteith, announced in the House of Commons on 11th June that:

"Lieutenant-General Howard D. Graham, following his retirement on August 31st from the post of Chief of the General Staff of the Canadian Army (as announced yesterday by my colleague, the Minister of National Defence), has agreed to undertake on behalf of the government a comprehensive survey of all aspects of Canada's Civil Defence policy and program.

"I might say that, in the view of the government, the need for a thorough re-appraisal of current policies and programs at this time is underlined by the changing nature of the threat which confronts Civil Defence in this and in other countries. In the postwar decade from 1948 to 1958, during which Civil Defence has been active, the scale of attack has shifted from atomic to hydrogen weapons. For the years immediately ahead, Civil Defence faces the need to re-examine present plans and assumptions, based largely on hydrogen weapons, in order to make sure that they take sufficient account of the new threat posed by the intercontinental ballistic missile.

"It is expected that General Graham's survey will require him to visit various provinces of Canada in order to see for himself what progress in Civil Defence is being made at provincial and local levels. In this, he will be expected to consult with provincial and municipal leaders, as well as those familiar with Civil Defence policies at the national level."

HEADS GOVERNMENT INQUIRY ON CD POLICY



Lieutenant-General Howard D. Graham.

DEPUTY CD CO-ORDINATOR ATTENDS
INTERNATIONAL CD MEETINGS

Major-General G.S. Hatton, Deputy Federal Civil Defence national Co-ordinator, as Canadian observer, attended the meeting of the International Civil Defence Committee held at Geneva in May, and during the same month he was also present at the NATO meeting of Civil Defence held in Paris.

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C.B.C. BROADCAST - "SURVIVAL IN THE ATOMIC AGE"

The Deputy Federal Civil Defence Co-ordinator, Major-General G.S. Hatton, spoke over the C.B.C. network on Sunday, 8th June. The text of his talk is reproduced below:

Recently I came across a quotation from the Journal of the American Medical Association which reads, "Something I will never be able to understand is that as the bombs have become bigger and bigger, most people have paid less and less attention to them and their potential for death and destruction".

That quotation is, unfortunately, all too true. In Canada I find this apathy to the nuclear threat to our country is largely due to two uninformed views: first, it will never happen; secondly, if it does happen there is nothing we can do about it.

You don't expect your house to burn up nor your children to get polio, but you can't be sure so you take precautions about both -- insurance and inoculation.

You can't be sure Canada will not be attacked, you should do something about your family's survival if we should be attacked. This is my reason for talking to you about this nuclear threat.

It is common knowledge that our potential enemies have H-Bombs and the means to deliver them in Canada, now the piloted bomber and in a few years the Intercontinental Ballistic Missile. We must, therefore, expect that in any third world war, which God forbid, we shall be attacked with little warning by these devices -- called nuclear weapons.

These nuclear weapons produce blast and heat effects equivalent to the explosion of millions of tons of high explosives: killing practically everyone and destroying all buildings within six miles radius of the point of burst -- that is over an area equal to the whole of OTTAWA -- and also producing a radioactive "fall-out" over thousands of square miles.

The only answer, therefore, to the blast and heat danger is not to be there when the bomb goes off and the answer to the secondary effect, "fall-out", is to go into a cellar or strong building.

We, in Civil Defence, plan to save the population of our Target Cities, of which there are 13, by the removal of people before the explosion -- this is called evacuation.

The difficulty about evacuating large cities is the traffic problem; about which all motorists are all too familiar especially on the way to and from work. Then you may picture the evacuees, who do get out, wandering helplessly about the country.

Don't be put off by either picture, which is undoubtedly what would happen if there were no Civil Defence plans and no Civil Defence organization, but in most areas of Canada both exist.

The key to successful evacuation is organization and traffic control. By using all arterial roads and other outlets as "one-way" traffic exits and associating a "traffic-tight" area of the city with each exit the traffic problem can be solved. These areas must be organized and controlled by wardens, and police so that there is no cross traffic and the whole population of each traffic-tight area moves out by its associated exit to its associated reception area, where evacuees are billeted on the local population.

We know, from the experience of police and traffic engineers and by our own and other Civil Defence tests, that we can load an average of 6 persons per vehicle and move 1,000 vehicles per hour per lane past a point at a speed of 25 miles in the hour. This means 6,000 persons per lane per hour could be moved out of our cities and so all but three of our Target Cities could be evacuated in 5 hours.

In order to be successful, evacuation and its counterpart reception must be carefully planned and organized. A plan, or blueprint, is the first requirement; just as an architect's drawings for a building must precede construction. The plan must be simple and readily understood by everyone.

In accordance with this Federal outline, detailed plans or blue-prints have already been produced by local Civil Defence authorities for nine out of our thirteen Canadian Target Cities and the "stand-fast" and reception arrangements for the rest of the country are also either organized or in the progress of organization.

Let us now consider our second danger -- radioactive "fall-out". You should realize, if you don't already know, that: we shall be able to fix the place of burst and the general direction and area likely to be affected by "fall-out"; and as there will be a time lag after the bomb goes off before the "fall-out" reaches areas unaffected by heat and blast the Civil Defence authorities will have time to issue you with instructions.

Before the bomb burst you will have been warned to go to your refuge and stay there until further instructions are broadcast. After the danger area has been determined, fresh instructions will be broadcast explaining in what areas people can come out of refuge and the time that others must remain in refuge -- normally not more than 48 hours.

To be able to issue these broadcasts, including the earlier warnings for evacuation, Federal Civil Defence has already acquired 10 transportable broadcasting sets which are being tested shortly in ONTARIO to determine, amongst other things, how many more we need for CANADA.

Our examination of these problems shows clearly what must be the responsibility at each level of government. Only the municipal authorities in the cities and in the rural areas can make the detailed plans respectively for evacuation and reception. Only the provincial authorities can co-ordinate evacuation and reception, organize traffic control and related measures.

The ability to carry out these plans requires a good local Civil Defence organization. The responsibility for seeing that local plans are capable of working rests with your Mayor.

When local plans have reached an advanced stage and the local Civil Defence organization is nearly ready to make them work, you will be informed what preparations you must take to ensure that you and your dependents will have a good chance of survival.

In a democracy, Mayors and their Councils respond to local pressure. It is up to you to see that your Mayor and Council have this

problem of your survival under control. If there is no Civil Defence organization in your city or area ask the Mayor why and what is being done.

A word about the Intercontinental Ballistic Missile. It is not only a Red missile, it is also a Red Herring which is used as an excuse by people who wish to evade their own responsibilities by pretending that Civil Defence plans are obsolete. These plans are not obsolete although during the next ten years, as we move from the piloted bomber threat to the piloted bomber and missile threat and, possibly, ultimately to the all-missile threat, they will require adaptation. During this time we shall also progress both in means of attack and of defence. It is not a hand of Five Aces that the Russians hold either to-day or to-morrow.

In conclusion, I would like to emphasize that it is the state of unpreparedness of the victim that invites aggression. Adequate and well-known preparations to meet a nuclear attack on this country, as well as our ability to retaliate, will be a strong deterrent to our enemies attacking us.

Every citizen has a dual responsibility; first, to be prepared, that is, to know what he and his dependants must do to survive and, secondly, to persuade, that is, to elect at all levels of government responsible administrators who will support Civil Defence and so assure the survival of our great nation.

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WELFARE SERVICES ACTIVITIES

EMERGENCY CLOTHING COURSE

Thirty candidates representing all sections of Canada attended an Emergency Clothing Course at the Canadian Civil Defence College, Arnprior, 26 to 30 May, 1958.

As a major portion of the job of emergency clothing workers in time of emergency will be the sorting and processing of used clothing, a very important part of the course was the demonstration of the sorting and sizing of used clothing which took place at the Ottawa Neighbourhood Services plant.

The methods employed by this organization are based on the Civil Defence Welfare Services system of sizing, coding and baling of used clothing. At the plant, the candidates had an excellent opportunity of learning first-hand methods and the techniques involved in the handling of used clothing.

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EMERGENCY FEEDING COURSE

Thirty-nine candidates attended this course at the Canadian Civil Defence College, 2 - 6 June. This group of professional dietitians, home economists, and restaurateurs received indoctrination into general Civil Defence and Welfare policies, and specifically studied the feeding problems involved. In addition, the three groups considered their role in the event of a national disaster.

Candidates for this type of course are selected by Civil Defence Co-ordinators through provincial and local Dietetic Associations, Home Economics Associations and Restaurant Associations. There was also representation from the Armed Services and other government departments.

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HEALTH SERVICES

NEW MEMBER JOINS STAFF

Mr. Everett J. Carruthers, joined the staff of the Federal Civil Defence Health Services and will assist Mr. J.E. Matthews, Federal Civil Defence Supplies Officer, with the overall organization of the Emergency Health Supplies Stockpile Programme.

Mr. Carruthers is a graduate of the Ontario College of Pharmacy. He joined the Royal Canadian Army Medical Corps in 1933 and was discharged in 1936. He then conducted a retail pharmacy business in the Town of Carp, Ontario, until the outbreak of World War II. In June 1940, he again enlisted in the R.C.A.M.C. and was posted to Central Medical Stores in Ottawa.

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SCHEDULE OF COURSES TO BE HELD
AT THE CIVIL DEFENCE COLLEGE
SEPTEMBER TO DECEMBER 1958

<u>Course No.</u>	<u>Title</u>	<u>Dates</u>
314	Conference for St. John Ambulance Association Officials	2 - 5 Sept.
315	Conference of Training Officers	8 - 12 Sept.
316	Veterinarians Indoctrination	8 - 12 Sept.
317A	Rescue Instructors Part "A"	8 - 12 Sept.
317B	Rescue Instructors Part "B"	15 - 19 Sept.
317C	Rescue Instructors Part "C"	22 - 26 Sept.
318	Engineers Forum	15 - 19 Sept.
319	Open	15 - 19 Sept.
320	Welfare (Emergency Feeding)	22 - 26 Sept.
321A	Staff Course "A" (Orientation)	22 - 26 Sept.
322	Conference of Co-ordinators	6 - 10 Oct.
323	Conference of Canadian Mayors	15 - 17 Oct.
324	Welfare (Subject later)	20 - 24 Oct.
325	Nurse Specialists	20 - 24 Oct.
326	D.N.D. Orientation	27 - 31 Oct.
327	Pharmacists Indoctrination	27 - 31 Oct.
328	Welfare (Emergency Lodging)	3 - 7 Nov.
329	Nurse Educators	3 - 7 Nov.

<u>Course No.</u>	<u>Title</u>	<u>Dates</u>
330	Physicians and Dentists Indoctrination	17 - 21 Nov.
331	Casualty Simulation (Instructors)	17 - 21 Nov.
332A	Staff Course "A" (Orientation)	24 - 28 Nov.
332B	Staff Course "B" (Plans)	1 - 5 Nov.
332C	Staff Course "C" (Operations)	8 - 12 Dec.
333	Open	24 - 28 Nov.
334	Communications Officers	24 - 28 Nov.
335	Road Transport Forum (Tentative)	1 - 5 Dec.
336	D.N.D. Rescue	8 - 19 Dec.
337	Open	8 - 12 Dec.
338	D.N.D. Orientation	15 - 19 Dec.
339	Open	15 - 19 Dec.

Details regarding the above courses are contained in Civil Defence Training and Educational Circular No. 20/58 issued 2nd June, 1958.

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NEWS FROM THE PROVINCES

NEW BRUNSWICK

LOCAL CD ORGANIZATION PARTICIPATES IN EXERCISE

"CO-OPERATION II"

FREDERICTON

The first phase of the national CD Exercise, Co-operation II, was "very useful" according to the Provincial CD Co-ordinator, Major-General H.N. Ganong.

NEW BRUNSWICK - C.D. ORGANIZATION IN "CO-OPERATION II"



New Brunswick took an active part in the recent Civil Defence exercise "Co-Operation II". Seen at the Civil Defence Headquarters control centre at Fredericton, N.B., are: (L. to R.) Major-General H.N. Ganong, Provincial Civil Defence Co-ordinator; John Francis, Intelligence Officer and Colonel K.S. Kennedy, Operations.

About 200 volunteers from the province took part in the exercise, whose object was to train directing staff and communications personnel in Control Centre duties in case of emergency.

Thirty members of Civil Defence organizations representing the different government services, the Army, the R.C.M.P. and amateur wireless operators made up the personnel of the CDHQ at Fredericton. In a statement at the end of the exercise, Major-General Ganong said:

"I think that the first phase of the exercise has proved very useful. The situations which have been presented during the exercise, particularly during the start of the imaginary thermonuclear attack on the North American continent, have reaffirmed our confidence in the practicability of the Civil Defence evacuation policy. The programme of evacuation of the regions in New Brunswick considered as "Target Areas" appear to be sound.

"The exercise has at the same time demonstrated more than ever, the absolute necessity of a maximum of flexibility in the planning field. The radioactive fallout endangered the routes and bridges, fires and other obstacles necessitated a change of all evacuation leading to reception centres."

In addition to the Provincial CD Headquarters, control centres at St. John, directed by Col. E.M. Slader; Moncton under the direction of Dan Billings; and Edmundston in charge of Captain Denis P. Venoit, took part in the exercise.

EDMUNSTON, N.B.

As a part of the nation-wide exercise, Co-operation II, the Civil Defence group at Edmundston participated on May 3 - 4.

The members of the local centre were in constant communication with Fredericton by wireless communications, provided by the Department of Forests. In town, the local group used its own system.

Seventy-two messages were received from headquarters at Fredericton and 44 were sent from local to provincial HQ describing the problems resulting from an atomic "explosion" at Presque Isle, Me. and in the city of Quebec.

5,500 people were theoretically given shelter at Edmundston from the county of Victoria and 6,000 people from the United States.

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QUEBEC

MONTREAL CIVIL DEFENCE ORGANIZATION TO BE RE-ESTABLISHED

A meeting was held on Monday, 9th June, in the office of the Mayor of Montreal, M. Sarto Fournier, to discuss plans for the revival of a civil defence organization for that city.

The deputy Federal Civil Defence Co-ordinator, Maj-General G.S. Hatton, met with the Hon. Paul Sauve, Provincial Minister of Social Welfare and Civil Defence for the Province of Quebec; the Deputy Minister, M. Fernand Dostie; Col. Maurice Forget, Q.C., Chairman of the Montreal Metropolitan Commission; M.J.M. Savignax, Chairman of the Montreal Executive Committee; M.L. Hetu, Director of Montreal Civil Department and Mayor Sarto Fournier.

The Hon. Paul Sauve, was complimented by Maj-General Hatton for his interest and understanding of Civil Defence problems particularly those of evacuation and reception. Mr. Sauve expressed his determination to re-establish Civil Defence in that city. It was agreed that the area encompassed should be that of greater Montreal and Mr. Sauve undertook to obtain the necessary legal powers to do this. Mayor Fournier agreed to appoint a Civil Defence co-ordinator and a Planning Group for the area as soon as possible.

After the meeting, Mr. Sauve publicly stated that although he still held to the position maintained by the Province of Quebec that Civil Defence was primarily a responsibility of the Federal Government, he agreed that there were responsibilities at all levels of government. He also undertook to see that adequate reception arrangements would be made by the Province of Quebec.

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ONTARIO

HIGH SCHOOL GIRL GIVES ADDRESS ON CIVIL DEFENCE AT STRATFORD

At a recent Civil Defence Welfare ceremony held at Stratford, Ontario, a 15 year old high school student, Miss Audrey Kinkaid, gave an address on one's personal responsibility regarding Civil Defence.

STRATFORD GIRL SPEAKS ON CIVIL DEFENCE



Miss Audrey Kinkaid, Stratford, Ontario.

Miss Kinkaid is a student at Stratford Collegiate and is in grade 10A. Miss Kinkaid's interest in Civil Defence is due to her mother who is a member of the Welfare group of the County of Perth, City of Stratford Civil Defence. Mrs. Margaret Fleet, the Civil Defence Welfare Director considered that by having a young student speak that it would be the means of creating more interest in Civil Defence among the younger people of the community.

The following is the text of Miss Kinkaid's address:

"Civil Defence is everyone's business! Since the whole idea of Civil Defence is to help you protect yourself and your community, it is your responsibility to learn what is going on, to offer your services, to study available publications, and to prepare your home against possible attack. The responsibility is yours, no one can do these things for you.

"More and more, Civil Defence teams are taking a leading part in overcoming local emergencies. They invariably arrive in the vanguard of rescue workers, prepared and equipped to give first aid, fight fires or floods, and generally help where most needed. Civil Defence groups, on occasion, have crossed provincial boundaries to co-operate with their fellow workers at scenes of natural disaster or accident.

"Unfortunately, the public hear little or nothing of these achievements, usually because the workers are too busy doing their jobs to think of publicity prospects. As a result, news people on the spot do not realize there are Civil Defence workers helping.

"Civil Defence is organized preparedness. But, you say, why should we prepare? Because, in the event of war, there is a strong possibility that Canadian cities, and even smaller centres, would be attacked with atomic bombs. Your own backyard may be tomorrow's front line. The hour may not strike this year, next year, or ten years from now, but it could strike tomorrow - and we must be ready. A high degree of organization amongst the population at the moment of an atomic attack, protective measures prepared in advance, and an extensive knowledge of the fundamentals of anti-atomic defence can sharply reduce the number of those affected in atomic explosions and enable them to avoid its harmful consequences. Your chances of survival are good - even under air attack - IF you are prepared!

"In reference to the vigour and determination of the federal government in relation to Civil Defence, the Hon. J. Waldo Monteith, Minister of Health and Welfare, and federal cabinet minister responsible

for Civil Defence said: "I earnestly hope that this same spirit of vigour and determination will animate all those - - - - governments and individuals alike - - - - who are joined with us in the task of building a stronger Civil Defence organization throughout the nation."

"Civil Defence is a form of insurance against a disaster which may or may not come. It is a way of saving lives and property, of protecting you and your family should war strike Canada; it is a way of helping to keep you going, and to keep production going in spite of atomic, biological or chemical attacks. Civil Defence is Your Defence!

"Although seemingly unknown to a great number of people, we do have Civil Defence in Stratford. Night after night, men and women are being trained to do the jobs of Civil Defence workers. One by one, these questions are being answered - "Where is the safest place to be during an air attack?" "How long should you wait to go outside after an atomic blast?" "What should be kept in a family shelter?" "Would YOU know what to do?"

Remember - - - -

"If we never need what we learn in Civil Defence,
we lose nothing;

But if we never learn what we need,
we may lose everything."

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NIAGARA FALLS COMPANY STAGES REALISTIC CD EXERCISE

(The following item is taken from the "Cyanamid News", April 1958).

Civil Defence training took on a realistic note on April 16 when the Cyanamid Company of Niagara Falls, simulated an explosion at the recreation hall. Company medical and safety officials were assisted by local police, Red Cross officials, St. John Ambulance, hospital personnel and Federal Civil Defence officials.

Brigadier R.G. Whitelaw, Co-ordinator of Civil Defence for Region No. 2, said that such demonstrations were a valuable stimulus to Civil Defence training. He added that there seems to be a growing awareness among the public of the need for Civil Defence.

NIAGARA FALLS CD EXERCISE.



Interested citizens of Niagara Falls, Ontario, watch Civil Defence Casualty Simulation Exercise sponsored by medical and safety officials of the Cyanamid Company.



Rescue workers are pictured giving first aid to the simulated casualties evacuated at the recent Civil Defence demonstrations at Niagara Falls, Ontario.

A "cast" of more than 50 took part in the exercise, which simulated a disaster in a small community without a hospital. Local police discovered the accident and summoned help. Some 18 "casualties" received first aid, before being moved by ambulance crews to a theoretical advanced treatment centre.

Besides employees of the company, nurses-in-training from the Greater Niagara General Hospital volunteered as casualties. Among the officials who simulated the casualties were Gordon Kruger, chief first aid instructor, Canadian Red Cross; Major Richard Bingham of the Federal Civil Defence Headquarters staff; Barbara Lee, R.N., Toronto, Gordon Bone, Hamilton; Fred Dalzell, Brampton, and Les Thornton from Welland and Alan Cornwell of Niagara Falls, and Sergeants Cole and Richards, both of the R.C.A.M.C. School at Camp Borden.

Dr. R.G. Warminton, Cyanamid medical director, who co-ordinated the exercise, said that it was the company's aim in staging the exercise to stimulate Civil Defence training among all agencies which would be required to function in an emergency and to point up the need for co-operation between them.

Alan Cornwell, first aid instructor at the Niagara Plant, served as stage manager in the exercise. He was assisted by two assistant stage managers, Clare Becksted and Pat Devlin, both of the Niagara Plant. Les Thornton, Welland Plant first aid instructor, who is an instructor in casualty simulation, also took a leading role in the demonstration.

Miss Phyllis Archer, R.N., was in charge of the advanced treatment centre. Other company nurses who participated were Miss Viola Watson, R.N. and Mrs. Marg Fisher, R.N., both of Welland Plant, and Mrs. E. Stone, R.N., Niagara Plant medical department. Plant physicians Dr. W.J. Martin, Niagara Plant, and Dr. W.G. West, Welland Plant, operated the advanced treatment centre.

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MANITOBA

NEW DIRECTOR OF WINNIPEG CIVIL DEFENCE BOARD

Mr. C. Wilkes was appointed in June to be Executive Director of the Winnipeg Metropolitan Civil Defence Board. Mr. Wilkes recently retired from the Regular Army after twenty-seven years of continuous service.

TRAINING COURSES

Training in the various Civil Defence Services had been curtailed in order to give utmost attention to the organization of the Man-a-Block program. However, a Civil Defence Course in Communications was held under the direction of Mr. G.E. Taylor, Radio Operator Instructor of the Manitoba Technical Institute. This course, upon completion, entitled candidates to write for their Federal Amateur Radio-Operators' license.

A very interesting and constructive addition to Civil Defence training in Manitoba was the Provincial Civil Defence's first course on Registration and Enquiry which was held on February 22nd and 23rd under the leadership of Mr. Mert McKinnon of the Federal Welfare staff.

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CIVIL DEFENCE EXERCISES

Much value and exchange of ideas was brought about between the Army and the Civil Defence organizations of both the Metropolitan Area and the province on the weekend of 19th - 20th April, 1958, at Headquarters Prairie Command, Fort Osborne Barracks. This Civil Defence study was called Exercise "MUSHROOM", and was the first of a series of lectures, exercises, etc., to be conducted outlining the role of the Armed Services in Civil Defence.

The following represented the Metropolitan Civil Defence Board:

Captain S.C. Bagley	Mr. E.W. Frehs
Dr. L. Bradley	Drillmaster A. Humphries
Mr. J.W. Brice	Mr. H.O. Needham
District Chief D.C. Cruden	Mr. J.W. Willis
Mr. Harold W. Daly	Inspector R. Young

EXERCISE "CO-OPERATION II"

The results of this nation-wide exercise, was most gratifying, and a great degree of interest and initiative was shown by the Civil Defence volunteer groups who participated. All Services were represented and a great many useful lessons were learned. As in all exercises, some rough spots occurred. However, it was for this reason that exercises are held, and any points that require adjusting can be rectified in the future.

A new and interesting feature of "Co-operation II" was the active part taken by the Volunteer Air Patrol. Mr. Lou McPhillips, as Wing Leader of the Air Patrol, was present in the exercise control room and rendered excellent service in this department.

- Metropolitan Civil Defence Board Bulletin
No. 20, June, 1958 -

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SASKATCHEWAN

CO-OPERATION II

Upwards of 100 volunteers in Saskatchewan took part in this exercise which dealt with problems related to a simulated 5-megaton bomb drop "somewhere in Saskatchewan" - and the reception of evacuees and casualties from Winnipeg, Manitoba, and the States bordering on the province.

Military co-operation in its new role in support of Civil Defence was given a thorough test. The Army, R.C.A.F., R.C.M.P. and Red Cross had liaison officials at Provincial Civil Defence Headquarters. Volunteer radio operators in relays were in action all over the province throughout Saturday from 10:00 a.m. till 10:00 p.m. to back up other means of communication. This help was immensely valuable, for the teletype went out for a short time on Saturday morning, and the amateur operators rallied to do excellent work until the teletypes were again in operation. This exercise provided valuable training in case a national disaster should ever threaten Saskatchewan.

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CIVIL DEFENCE SUMMER SCHOOL AT UNIVERSITY OF SASKATCHEWAN

The University of Saskatchewan is again co-operating with the Civil Defence Branch of the Department of Social Welfare, Regina, in offering a course in Civil Defence to a limited number of candidates during the 1958 Summer Session at Saskatoon.

The course will consist of 16 periods of lectures, demonstrations, etc. Each period will comprise two sessions of 45 minutes each, running from 4:00 p.m. to 5:30 p.m. four days per week beginning on July 3 and ending on July 30. There will be no examination at the end of the course and no academic credit will be given to students who take the course. However, any student who attends ninety per cent of the lectures will receive a Civil Defence certificate and the sum of eight dollars to cover expenses incurred during attendance at the classes.

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ALBERTA

EXERCISE "CO-OPERATION II"

Part I of the second Canada-wide Civil Defence Exercise, "Co-operation II", began in Alberta at 9:00 a.m. on 3rd May, 1958, and continued for twenty-four hours until 9:00 a.m. next day.

Alberta Civil Defence Headquarters, and the four Zone Headquarters in Grande Prairie, Edmonton, Calgary and Lethbridge were in continuous operation during the Exercise. Around 400 volunteer workers helped to man control centres throughout the Province. The volunteers included about seventy Provincial Civil Servants. Many municipal Civil Defence Headquarters were also activated. These included the larger communities of Edmonton, Calgary and Lethbridge, together with centres such as Camrose, the County of Ponoka, Paintearth, Vermilion, Wainwright, Beaver, the County of Leduc, Stony Plain, Westlock, Red Deer, Innisfail, Bowden, Drumheller, Hanna, Vulcan, Carmangay, Champion, Kirkcaldy, Mossleigh, Arrowwood, Queenstown and Milo, Mountain View, Olds and Carstairs, Fort Macleod and Pincher Creek either actively engaged or provided personnel to other centres. Civil Defence workers from Coaldale, Taber, Raymond and Magrath assisted at Lethbridge; personnel from Beaver Lodge and Sexsmith helped at Grande Prairie, and the Town of Peace River's Civil Defence staff was supplemented by workers from Grimshaw and Fairview.

The Armed Services participated actively in the Exercise. Militia Groups in the Central and Northern Civil Defence Zones activated their respective headquarters for the full term of the Exercise, and assisted in the solution of hypothetical problems of traffic control, radiation monitoring and rescue operations. Similarly, the Air Force collaborated in air reconnaissance and transportation.

Senior Staff Officers were detailed by Headquarters Western Command and Tactical Air Command for liaison at A.C.D.H.Q. and Zone Headquarters.

The Hon. Mr. Halmrast, Minister-in-charge of Civil Defence in Alberta, Mr. R.M. Putnam, Deputy Minister, and other senior members of Government and the Provincial Civil Service, together with high-ranking officers of the R.C.M.P., the Military Forces, and representatives of industry, visited A.C.D.H.Q. while the Exercise was in progress.

Part II of "Co-operation II" (conducted only at A.C.D.H.Q., in Edmonton) commenced at 9:00 a.m. on 9th May, six days after the hypothetical thermonuclear attack which launched Part I of the Exercise. This part was devoted to an examination of post-attack problems which would confront Civil Defence and other Government Departments.

The Hon. Mr. Halmrast and Air Vice-Marshal Howsam, Provincial Co-ordinator of Civil Defence expressed sincere thanks and appreciation to the Armed Forces and all full-time and voluntary Civil Defence personnel who participated in Exercise "Co-operation II".

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REPORTS FROM THE ZONES

NORTHERN ZONE

During the evening of 10th March, Mr. G.F. Pringle, Officer-in-charge, Northern Zone, presented Civil Defence brooches to 38 ladies of Czar who were completing a Home Nursing Course. Mr. Pringle also presented certificates and lapel pins to a graduating class of twenty-three Civil Defence Auxiliary Policemen.

The village of Entwistle carried out a successful clothing and utensil drive on 6th April for the purpose of establishing a stockpile for emergencies. The Civil Defence Welfare group of the same village gave valuable assistance to Mr. and Mrs. L. Saretzsky whose farm home in Entwistle was destroyed by fire on 31st March.

CENTRAL ZONE

Mr. J.W. Stewart, Officer-in-charge, Central Zone, and Mr. L.O. Jones, Staff Officer, visited Fort Macleod on 17th April to discuss civil defence plans with the Director, Mr. R.W. Ainscough. Later in the day, Mr. Stewart and Mr. Jones spoke on Civil Defence to a meeting of some sixty persons.

Members from municipalities which would be activated during Exercise "Co-operation II" attended a Directing Staff Conference at Central Zone H.Q. on 21st and 22nd April. On 28th and 29th April a number of Civil Service volunteers from Provincial Government Departments in Calgary received training in Control Room Procedure at the Alberta CD School in Edmonton.

PEACE RIVER ZONE

Mr. S.M. Dunbar has been appointed Officer-in-charge of the newly-created Peace River Zone with Headquarters in Grande Prairie.

During April the Peace River Civil Defence group was alerted to flood conditions in the town. The Director of Civil Defence, Mr. E.J. Glasser asked for and was immediately supplied with 2000 sandbags from Edmonton. As more were found to be urgently required, the R.C.A.F., at the request of A.C.D.H.Q., carried out a successful air drop of a further 10,000 bags.

SOUTHERN ZONE

Mr. J.G. Robertson has been appointed Officer-in-charge Southern Zone, with Headquarters in Lethbridge.

On 3rd April, the Provincial CD Co-ordinator, Air Vice-Marshall, visited Lethbridge and addressed members of the City Council and the Lethbridge Civil Defence organization on the role of Civil Defence in the event of war as well as in a peace-time disaster. Major J.S. Roxborough of Calgary and Mr. Robertson also addressed the meeting.

Southern Zone Headquarters were used as a Control Centre during Exercise "Co-Operation II". A total of seventy-seven persons, working in four 6-hour shifts, manned the Control Centre.

* * *

BRITISH COLUMBIA

STANDARDIZATION OF HOSE
COUPLINGS AND CONNECTIONS COMPLETED
(INCLUDING INDUSTRIAL PLANTS) IN BRITISH COLUMBIA

The above programme of standardization was initiated by the Civil Defence authorities in view of:

- (i) the wide variation in the size and pattern of fire hose connections and couplings whereby the firefighting equipment and facilities of many municipalities in the Province could not be utilized in other areas without the use of adapters, and
- (ii) the need for uniformity in the size and pattern of such equipment so as to permit the ready exchange of firefighting equipment and facilities wherever this might be required in a Civil Defence emergency.

The programme was carried out under the terms of a Federal/Provincial Agreement signed July 24, 1953, which provided for an estimated expenditure of \$ 243,155.25 from Civil Defence funds of which the Federal share was not to exceed \$ 82,000. This amount was subsequently increased to \$ 273,155.25 (Federal share \$ 92,000.00) by an exchange of letters between the Minister of National Health and Welfare and the Provincial Secretary dated April 12 and 25, 1957. The actual cost of the Programme, as at December 31, 1957, has been \$ 265,583.66 of which the Federal share is \$ 86,964.67. No part of these costs was paid by the Municipalities.

Conversion to a standard of 8 threads per inch and 3 inches outside diameter commenced in November, 1953, and was completed in October, 1957. Legislation has been requested making it mandatory that all hose couplings and connections installed in this Province in future conform to this standard. This standard is in effect in Alberta and negotiations are under way at the present time with the State of Washington which, when finalized, will provide for adapters being available at certain points on the border so that fire-fighting equipment from either country will be able to go to the assistance of the other when required.

Three machinists and three machinist helpers were employed to carry out the work under the direction of the Provincial Fire Marshal and two Army Workshop Vehicles were loaned to the Province for this purpose by the Department of National Defence. The work has involved the conversion of; 9257 hydrant ports; 1877 hydrant spindles; 6462 hose couplings; 937 nozzles; 92 pumpers; 49 auxiliary pumps.

The original estimate of costs was based on reports received from local authorities indicating the amount of conversion required in their respective municipalities from which it was anticipated that the Programme could be completed by March 31, 1956. However, the information supplied proved in many cases to be inaccurate and considerably more work was involved than had been reported. Certain delays in the work were also encountered due to adverse weather conditions in some parts of the Province.

The successful conclusion of this undertaking provides the most significant advance in Fire Protection Service in the Province since the inception of organized Fire Services and now permits the ready interchange of firefighting equipment and facilities wherever the same may be needed in an emergency.

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PROTECTION AGAINST FALLOUT RADIOACTIVITY

There is no hope of producing a textile fabric which will give significant protection against gamma radiation from fallout. Textiles can play a significant part in relation to thermal effects.

BY DR. E.E. MASSEY

(Defence Research Board, Atomic Research Branch,
Ottawa, Ontario)

In an address to the Canadian Association of Textile Colourists and Chemists, Quebec Section, April 18 at Montreal.

"FALLOUT" HAS BECOME a rather popular subject to talk about. On the other hand the study of the facts about fallout is much less popular. As a consequence, not only do misconceptions spread, but

they multiply, and, by and large, the whole thing gets out of perspective as is borne out by some of the public stupidities which are reported in the press from time to time. To avoid these misconceptions it is important to bear in mind:-

Firstly, that radioactivity can come only from material which is radioactive, just as light can come only from material which is incandescent.

Secondly, exposure to radioactivity does not make a person radioactive, any more than exposure to sunlight makes them luminous. For example, carrying a piece of radium in your pocket can be dangerous to you or to anyone you are near for any length of time, but after you have got rid of it you are not radioactive and you cannot affect somebody else.

Before talking about protection, it is essential to know what we have to protect against. There are three kinds of radioactivity which can come from fallout. These are designated: alpha, beta and gamma from the first three letters of the Greek alphabet. They have different characteristics so their effects on the body differ too. All radioactive materials do not give off all three radiations; some give only one, most give two, and some all three.

Effects on the body depend on:

- (a) which form of activity is the culprit,
- (b) whether the radioactive material is inside or outside the body,
- (c) how intense the activity is,
- (d) how much of the body is irradiated, and
- (e) how long the exposure lasts.

Alpha radiations have a very short range in air; they cannot penetrate the skin. Consequently an element which gives off only alpha radiation is hazardous only when taken into the body by consuming it or inhaling it, or through a wound. This is called an internal hazard, and the consequence may be bone cancer at a later date.

Beta radiation has a range of a few yards in air, and may penetrate to about 1 cm into body tissue. Substances which emit beta activity give to an internal hazard, like that from an alpha emitter, and a very limited external hazard. In prolonged contact with the skin they cause a contact hazard, and may produce burns.

Gamma radiation has a range of several hundred yards in air and can penetrate an appreciable thickness of massive material. It is like X-rays only more energetic. Consequently radioactive material which emits gamma radiation can set up an external hazard even at some distance from itself, and if taken into the body there will be an internal hazard as well.

Gamma Radiation of Greatest Concern

IT WILL BE apparent to you that gamma radiation is the one of greatest concern. The quantity of gamma radiation received by an individual, usually called the dose, is measured in roentgens -- a unit of quantity named after Roentgen, the discoverer of X-rays. The actual definition of the unit doesn't matter. The intensity or dose rate is measured in roentgens per hour. The relation between dose and dose rate is the same as the relation between mileage and speed on the speedometer of your cars. In other words

$$\text{dose rate} \times \text{time} = \text{dose}$$

if the dose rate remains constant. It is estimated that a dose of 400 to 450 roentgens received in short time (24 hours) over the whole body would kill 50% of the people exposed to it. This quantity is called the median lethal dose. Lesser doses may produce the early effects which are called radiation sickness. Still lesser doses, which produce no early or acute effects whatever, may have results which may be delayed for decades. These delayed effects usually take the form of cancer or leukemia. If only a fraction of the body is irradiated larger doses may be taken without causing death. The effects are reduced, too, if the duration of the exposure is prolonged, the total dose being the same.

Now what about the radioactive substances which give rise to these radiations? Where do they originate and what happens to them? The fundamental reaction which produces these radioactive materials is the fission or splitting of uranium or plutonium. In this process about two hundred radioactive atomic species are produced. At the temperature of the fireball, which is one of the phenomena accompanying a nuclear explosion, these fission products exist in the form of gas, but subsequently condense into a very fine dust as the fireball cools down. If there are larger particles in the cloud, such as would be drawn up if the fireball touched the ground, some of the fine radioactive dust sticks to these larger particles and falls to earth in a few hours (up to 12 hours or so).

The finer particles may remain in the stratosphere a much longer time, and gradually be deposited on the earth over many years. All the radioactive material that comes back to earth is called fallout, but our main concern is that part which comes down in the first few hours, sometimes called the "local fallout." This designation is a bit of a misnomer and serves only to distinguish it from "world wide fallout". The so-called "local fallout" from the March 1, 1954 Bikini test covered about 7,000 square miles, and you will recall that the crew of the Japanese Ship "Lucky Dragon" were seriously affected at a distance of about 80 miles from the point of burst. The actual area affected by local fallout depends on the size of the bomb, the height of burst, and the upper level wind speeds and direction.

Now what about protection? You will recall that there are three kinds of hazards we must protect against; internal, contact, and external, and that exposure must be for more than just a momentary period of time in order to be injurious. Protection against the internal hazard is not difficult, and is accomplished chiefly by avoiding the consumption of contaminated food or water.

Of course, this, in turn, requires the means to prevent contamination of food, which depends on dustproof packaging, as well as the means to detect contamination on food which is carried out by the use of radiation detection instruments such as geiger counters. Contact injuries can be prevented by keeping radioactive dust off the body, or by working off quickly any that does get on. Clothing of fairly closely woven texture with good closures and preferably fairly close fitting about the wrists and cuffs, or merely tied at these points will assist in keeping dust off the skin. Some kind of headgear is desirable to keep dust out of the hair. A bandana around the neck is useful. Perhaps I should again emphasize the distinction between contamination and exposure. Contamination means the actual presence of radioactive material on the skin. Exposure means that the rays from radioactive material have reached the thing or person in question.

Protection against the external hazard is more complex, because larger quantities of radioactive material are involved and the main risk is from gamma radiation. There are three contributing factors in protection:- time, distance and shielding.

In order to understand the part that time plays in protection against radioactivity from fallout it must be appreciated that as a fire gradually burns itself out, so the activity of radioactive material diminishes by the very fact of its being radioactive. Roughly speaking for every sevenfold increase in fission product age their activity decreases tenfold. e.g.

It at 1 hour after the explosion activity is 100 units then at

$7 \times 1 = 7$ hours it is 10 units

and at $7 \times 7 = 49$ hours

or 2 days it is 1 unit

and at $7 \times 2 = 14$ days

or 2 weeks it is $1/10$ unit

and so on.

It follows that if the start of exposure is delayed, a smaller exposure will be incurred in the same length of time than if no delay took place. Such a delay does occur, because fallout is never instantaneous, and at some distance from the earth it may be some hours before the fallout arrives.

Distance Factor

THE distance factor comes in because the gamma radiation has a considerable range in air. If you stand in the middle of a uniformly contaminated football field one half on the gamma radiation you get comes from beyond 25 feet from you, the other half from within 25 feet of you. So that, failing other means of protection, if you clear an area around you quickly, a small degree of protection can be achieved. For a cleared area of 100 ft. radius the exposure is reduced to $1/4$.

Shielding is, perhaps, the most practical way of getting protection against fallout radioactivity.

It must be understood that a layer of material will stop some gamma radiation but no layer of material will stop all the gamma radiation which falls upon it. The thickness of a layer of a particular substance which will stop 50% of the gamma radiation which hits it is called the "half thickness layer" of material. For example:

$\frac{1}{2}$ inch of lead, or

$\frac{3}{4}$ inch of steel, or

$2 \frac{1}{4}$ inches of concrete, or

$3 \frac{1}{2}$ inches of burst

will stop one half of the fission product gamma radiation falling on it. A second half thickness would then reduce the remaining gamma radiation by 50%, i.e. the two half thicknesses -- whether separated or in contact -- reduce the activity to 25% of the original.

i.e. $\frac{1}{2}$ of $\frac{1}{2} = 1/4$

and so on.

One point I should mention and that is that radiation, like light, is subject to scatter and some exposure can occur indirectly although well shielded from direct exposure. Hence, all around shielding is necessary.

Protection of Building Materials

UNFORTUNATELY, it is not possible to get a useful degree of shielding with anything which is portable. This will be recognized for fact if you will calculate the weight of a lead shirt $\frac{1}{2}$ inch thick -- lead weighing 710 lbs. per cubic foot. Then remind yourself that this is enough only to cut the exposure in half. The most readily available shielding material and the cheapest is earth. Getting below ground level takes advantage of the shielding value of earth. Building materials give some protection and while it is difficult to determine the protective value of any particular building the following figures provide some guide. The figure called the Protective factor is the factor by which the outside dose or dose rate has to be divided to give the indoor dose or dose rate respectively. The figures quoted are based partly on experimental data, and partly on calculations.

As textile specialists you are, of course, more particularly interested in the value of textile materials against the hazards under discussion. On this aspect two conclusions follow from the remarks I have made:-

- (1) The principal value of textile fabrics in fallout protection is to prevent the fallout dirt from contaminating the skin.
- (2) There is no hope of producing a textile fabric which will give significant protection against the gamma radiation from fallout.

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BUILDING PROTECTION FACTORS (ESTIMATED)

STRUCTURAL TYPE	PROTECTION FACTORS		
	Frame	Brick Veneer	8" Brick
<u>3 Bedroom Houses</u>			
(Central Mortgage and Housing types)			
2 Storey:			
Ground floor centre.....	2	3+	7
Basement centre	10	16	23
Basement corner	15	25	41
1½ Storey:			
Ground floor centre	2	3+	7
Basement centre	8	12	17
Basement corner	15	20	32
1 Storey:			
Ground floor centre	2-	3-	5
Basement centre	7	8	9
Basement corner	11	12	13
<u>3 Storey Apt. block (6 units)</u>			
Ground floor centre	2	3.5	8
Basement centre	13	16	23
Basement corner	25	31	49
<u>Multistorey reinforced concrete</u>			
Lower floor	10 (away from windows) 1000 or more (surrounded by earth)		
Basement			
<u>Shelter below grade</u>			
3 ft. of earth cover	1000 or more		

The picture, therefore, may appear a somewhat discouraging one. There is another aspect of protection against nuclear attack where textiles can play a very significant part. I refer to the thermal effects. The heat from a nuclear explosion may produce effects both on people and buildings which under some circumstances extend to a greater distance than the serious blast damage.

Protection against the heat effects can be achieved by using any opaque material which remains intact during the interval when heat is arriving. Thus, clothing gives some protection, two layers of clothing being much better than one. The outer layer should be loose to provide air space between the layers, and should preferably be of light colour. A flame retardant treatment is advantageous.

The use of fire resistant fabrics in place of readily inflammable ones for upholstery, curtains and draperies, can reduce the incidence of fires to a considerable degree. The importance of this cannot be overemphasized. Fire prevention is likely to be much less costly than fire extinguishment, and more effective as well.

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INTERNATIONAL CIVIL DEFENCE NEWS

RADIOACTIVE FALLOUT FROM ATOMIC TEST AND THE PROBLEM OF DISPOSAL OF WASTE PRODUCTS FROM NUCLEAR POWER STATIONS

from a report by Dr. Jammet of the
French Commissary for Atomic Energy

(taken from the Civil Defence International
Bulletin No. 31-32, Geneva, Jan.-Feb., 1958)

Until the end of the last century, populations were submitted exclusively to irradiation of natural origin. Since then, progress in human knowledge has added to that variety, artificial irradiation the causes of which are to be sought in the medical application of these radiations, in thermo-nuclear experimental explosions, and in the increasing development of the uses of atomic energy, the latter development varying in degree.

Radioactive fallout following upon thermo-nuclear explosions is due to the projection into the upper atmosphere of fine dust particles, which will end by falling to the ground over a varying period of time and at varying distances from the point of explosion. A distinction should be drawn between immediate, local fallout, which occurs during the hours and days following and in the immediate vicinity of the place of explosion, short-term regional fallout which occurs at hundreds of thousands of kilometres, and lastly, general fallout distributed over the whole surface of the planet and occurring after several years or even decades. The latter is the most interesting to study, as it is capable of causing overall irradiation of the populations of the globe as a whole; the radioactive products which are therefore most noteworthy are essentially those whose radioactive life is sufficiently long to enable them to last throughout the decades they will require to fall progressively to the surface of the earth. At present, attention is mainly focussed on elements such as strontium 90 and cesium 137 whose radioactive latent life is of the order of 30 years.

Regarding radioactive waste produced in the course of the activities of nuclear power stations, or in the ancillary plants, chemical and metallurgical plants attached to these stations, it would be emphasized that waste products are not disposed of at large. These waste products may be in the form of solids, of contaminated water, or discharges of gas or dust. They are previously treated, before disposal. It is a general phenomenon in all industrial undertakings that when waste products are too harmful, they are normally treated before disposal.

The treatment is based on the following principle: the waste products are sorted out into two lots; one contains practically all the radioactive products in a small bulk. These are products which are in reduced, solid form and should be stockpiled. The second lot consists of the mass of liquid or air which cannot be retained, and have to be disposed of, but have previously been purified of all radioactivity which it has proved possible to keep back, and which will now be dispersed in the form of concentrations proving harmless to the populations.

The problem may therefore be considered as two-fold; to stockpile highly radioactive products, on the one hand, and to disperse large bulks of concentrations having a low radioactive intensity, on the other. These two problems may become merged into one, if the stockpiling of highly concentrated products is carried out under defective conditions and there is a secondary revival of their radioactivity.

For the time being, the issue, particularly in France, is not important, since these products are only moderately active at present. In the future, they may raise intricate problems which are already being examined with a view to securing warehouses and containers for these products which would resist any possible revival of radioactivity and its future discharge. In the case of radioactive waste, the same elements are to be found as in the case of radioactive fallout, essentially long-lasting substances with a long radioactive life, such as fission products, - in particular, strontium, selenium and also iodine 131.

One very interesting aspect is to consider what becomes of these radioactive products, once released into our surroundings. They will follow two cycles of evolution: a mineral and a biological cycle.

In the mineral cycle, in the atmosphere, in surface, sea and sub-soil waters, and on the surface of the earth, these products will be diffused, carried by sea currents, air and river currents, and further, will be deposited on the earth's surface, in the mud of rivers and also on the ocean bed. It should be stressed that diffusion of this kind does not entail radioactive concentration, on the contrary, these deposits cannot contain any very dense concentration.

On the other hand, in the biological cycle, it will be seen that these radioactive products migrate through the various vegetable and animal species, beginning with the micro-organisms and plankton, and passing through a series of intermediaries in the vegetable and animal kingdom, may finally reach man.

An important fact is that these living organisms are not only able to draw from the external surroundings radioactive substances, at the same time as they draw their nourishment, but are also able to concentrate these substances. They are able to do so in very different forms according to the kind of radioactive substances and the variety of biological species.

But these concentrations are not negligible, - they may be multiplied some hundreds or thousands of times; if in the course of successive migrations, i.e. their passage through different species, the concentrations accumulate, the result may be concentrations which may have an incidence - I would add, exceptionally, but sometimes - of one million. Therefore a biological concentration of this kind may be dangerous, if it occurs in the edible species which are part of the nutritional circuit of human beings.

Here are two examples. The first relates to the vegetable species. Fission products mentioned earlier are capable of being concentrated in vegetable organisms. It happens that, as a rule, they concentrate more easily in leaves than in seeds, for instance. This is a favourable factor, since as will be recalled, a large part of human food is derived from the use of grains and, in particular, cereals.

If the second example is taken in the sphere of animal nourishment, it will be seen that these same fission products are essentially carried by milk. This is an unfavourable factor, since milk in many countries is by no means a negligible complement to human nutrition, and a main item in the diet of children. This explains why larger concentrations of strontium 90 have been found in the bones of children, than in those of adults.

A detail should be added as regards the value or level artificial irradiations which may be observed at present as a result of radioactive fallout, or of elimination of waste products from the nuclear power stations or their chemical and metallurgical plants. The statistics at present supplied by countries such as the United States and the U.S.S.R. tend to show that irradiation of the population, as resulting from radioactive fallout, represents at present a supplement to the natural irradiation and a certain percentage of the latter. It is obvious that in future, irradiation from fallout is essentially linked to the discontinuation, pursuit or accentuation of the number and potential of experimental explosions.

As regards the disposal of waste products from atomic energy, this is considered at present a negligible quantity in the world today. It is negligible because great precautions are taken. But it should be added that at present, atomic energy is only in its initial stages; consequently when developed, if it becomes in future the essential source of energy, if its application to propulsion develops, the disposal of waste products will increase, and it is the duty of those responsible to take the necessary precautions without delay, to indicate ways and means, and point to the measures required to utilize this source of energy which will undoubtedly prove a source of welfare to humanity, and do so in such a way that it is reasonable and free from the great risk for mankind.

SWITZERLAND

The Swiss Civil Defence Union has recently circulated a booklet in German entitled "Survive Atomic War ---- a universal problem". This is a translation of a booklet edited by the Swedish Civil Defence. It gives a simple but enlightening picture of what atomic war represents for each human individual and indicates the various measures for defence against its effects. It is not a gilded image, but the author has taken care not to give an over-pessimistic impression. The booklet demonstrates clearly that governments and populations should not remain indifferent to problems of civil defence. It is possible to protect oneself against nuclear weapons, provided there is no resignation. The booklet emphasizes that the population must not give in to cunning defeatist propaganda which would hamper the protective measures against atomic weapons.

A travelling exhibition on civil defence propaganda left Basle early in the year and by the end of the year will visit approximately 40 towns in Switzerland. It will show, in particular, relief equipment to be used in case of war or disaster. The exhibition which has been organized by the Swiss Civil Defence Union, was assembled by the Basle Section of this Union. It is divided into parts: in the first part, which is theoretical, large designs show a shelter which attracts the attention of the visitor to civil defence, explaining the most salient features of the problem. The visitor can therefore realize that he is not defenceless against nuclear weapons, and that if shelters and warning systems are established in time, 85% of the population of a large city could be saved. The second part shows equipment and apparatus of the various civil defence services: fire-fighting, first aid, relief for the homeless, ABC, warning, shelters and communications, and the technical service. Within the setting of this travelling exhibition, there is also a programme of films and lectures.

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U. S. S. R.

Civil Defence Congress in Moscow

During the Fourth DOSAAF Congress (Auxiliary Civil Defence Organization of the USSR), Marshal Koniev stressed that the various DOSAAF organizations should embrace the whole population in preparing anti-air-raid defence.

The DOSAAF has been asked to extend its training work on civil defence by undertaking intense propaganda especially among athletes. Young men and girls are to be ready to enter into action in civil defence units at a moment's notice. They will be trained in the various measures for defence; anti-air-raid, anti-biological and anti-chemical. They will also have an ideological and political training.

- Extracts from the Civil Defence International
Bulletin - No. 31/32 Jan.-Feb. 1958 -

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UNITED STATES

GOVERNORS' CONFERENCE ACTS ON CIVIL DEFENCE

The following resolution and report on civil defence were adopted by the Governor's Conference at its fiftieth annual meeting, Bal Harbour, Florida, May 21, 1958.

Resolution on Civil Defence

"The advent of the space age during the past year has highlighted the need for a strong civil defence, both as a means of survival in case of attack and as a powerful deterrent to attack.

"The fiftieth annual meeting of the Governors' Conference approves the 1958 report of its Special Committee on Civil Defence, together with its recommendations for legislative and administrative action by the Federal Government and by the States."

Report of Special Committee on Civil Defence

"Two years ago, and again last year, this committee recommended that the Federal Government accept primary responsibility in the vital area of civil defence and provide greater leadership and assistance to the States in the development of civil defence plans and preparations. On both occasions, the Governors' Conference adopted the committees' reports.

"During the past year, substantial advances in this direction have been made. The Durham Bill (HR7576) amending the outdated Civil Defence Act of 1950 along lines recommended by our committee two years ago has passed the House of Representatives and is now pending in the Senate. That bill would liberalize the contributions which the Federal Government may make to the States and localities. It also would give to the Federal Civil Defence Administration new authority to promulgate a National Civil Defence Plan, to be supplemented by corresponding State plans.

"Under the able leadership of our former colleague, Governor Hoegh, the Federal Civil Defence Administration has in fact prepared a National Civil Defence Plan. Although some annexes to the plan remain to be completed, it represents a commendable undertaking to outline the tasks of civil defence, allocate responsibilities, and indicate procedures to be followed. This plan, however, cannot be adequately implemented, or even promulgated, without the enactment of HR7576.

"We urge that the Governors' Conference again go on record in favour of HR 7576 and convey its views to the chairman of the Armed Services Committee of the United States Senate. While we believe that it does not go far enough toward recognition of the Federal Government's primary responsibility, its enactment would constitute a major step in the right direction. Progress has also been made in the recognition by the national administration of the need for an extensive program of shelters for protection from fallout. We endorse the recently-announced Federal program so far as it goes, and express the hope that the Congress will support it with needed appropriations.

"We urge that the Federal Government go further and adopt a system of Federal financial contributions so as to provide to States, localities, school districts, and individual families needed help and an incentive for the construction of such shelters. Expenditures for such an urgently needed program would be particularly timely now, in view of their impact on employment. We also believe the Federal Government should undertake research and experimentation in shelters for protection against blast, as well as fall-out.

"According to press accounts, the report of the Gaither Committee recommended that the Federal Government embark on a massive shelter program for protection against fall-out. As Governors we request that in so far as the Gaither Report pertains to shelter protection against fall-out that the same be made available to us.

"The progress that has been made in these various respects only encourages our belief that further steps can and will be taken. The urgent need has been dramatized since our last Governor's Conference by the dawning of the space age. The success, first by the Russians and then by our own armed forces, in launching earth satellites has indicated the feasibility of nuclear attack from outer space. The continued development of missile-launching submarines provides still another available method for the delivery of nuclear weapons virtually without warning. And we were already aware that two or three weapons in the megaton range could wreak greater destruction than all the bombing raids of World War II.

"Should there be a future all-out war with extensive devastation on both sides, it would probably be won by the side which is best able to carry on effectively after the devastation has occurred. It follows that a strong civil defence system would be a major deterrent to attack.

"In a recent statement before a Congressional committee, Governor Hoegh asserted: 'The principle that modern weapons and the means for their rapid delivery require that the total non-military defence activities of the Federal Government be given a priority commensurate to that established for our military preparedness measures.' We applaud and approve that principle.

"We reiterate our recommendations of last year for action by the States to provide for continuity of government in the event of attack, protection of essential records, and assurance of full utilization of available facilities and personnel."

The report was signed by: Governor Averell Harriman, New York, Chairman; Governor J. Hugh Aronson, Montana; Governor Orville L. Freeman, Minnesota; Governor Marvin Griffin, Georgia; Governor Edwin L. Mechem, New Mexico; Governor Vernon W. Thomson, Wisconsin.

GREAT BRITAIN

LARGE-SCALE JOINT CIVIL DEFENCE AND ARMY EXERCISE

Over 1,000 volunteers from towns and villages in Kent, Sussex and Surrey acted as homeless people in a Civil Defence Exercise at Warren Camp, Crowborough, Sussex, on Saturday, 22nd March.

The exercise, named "Mutual Two" involved both Civil Defence and the Army and it was directed jointly by Colonel G.R. Pouncey, County Civil Defence Officer for East Sussex, and Lieutenant-Colonel J. Petrie, R.A.M.C., T.A.

The object was to provide training in setting up and operating a temporary assembly area for homeless people. It was presumed that, during a war, a nuclear explosion caused severe damage and uncontrollable fires at Crawley and thousands of people lost their homes. All the scheduled Rest Centres were opened and filled to capacity and still 10,000 people remained.

A decision was made to open immediately an assembly area at Warren Camp, Crowborough, where the homeless could be gathered together, fed and tended, while billets were arranged for them in Crowborough town.

The "homeless" arrived in buses and lorries throughout the morning. Serious casualties were taken away by ambulance to hospital and the main stream was controlled and led to Rest Centres, first filing past a contamination meter which recorded the intensity of radioactivity.

Members of the Welfare Section of the Civil Defence Corps from Hailsham R.D., Battle R.D., Uckfield R.D. and Hove Borough, under the direction of Captain H.D.E. Owen, set up six assembly centres and six Rest Centres. At the assembly centres the "homeless" received cups of tea, light refreshments and simple first aid. From here they moved on to the Rest Centres where they were registered, received advice and assistance, clothing, first aid and a hot meal. They were given details of their billets and the exercise ended when the homeless families boarded vehicles presumably to take them to their billets.

Forty Civil Defence Welfare Section members working on a shift system prepared 1,500 emergency meals of meat and vegetable stew, for the "homeless", army and police personnel taking part and invited guests. The kitchen, which included brick-built stock-pot boilers, No. 4 Field Cookers and a laziman boiler were set up during the previous week by Welfare Section teams from Haywards Heath and Eastbourne.

Members of most sections of the Civil Defence Corps and Allied Services played their part in the exercise. The hygiene and sanitation arrangements were made by No. 1 Field Hygiene Company, R.A.M.C., T.A., and No. 204 Field Squadron, T.A., who were interested in the hygiene problems, including latrine accommodation and the disposal of waste, created by a large and sudden number of people.

Lieutenant General Sir Alexander Cameron, K.B.E., C.B., M.C., Regional Director of Civil Defence was among the many distinguished observers at the exercise. Also there were Admiral Sir Patrick Brind, G.B.E., K.C.B., Commandant of the Special Constables, East Sussex; Sir Frederick Bourne, County Chief Warden, East Sussex; Mr. H.S. Martin, Clerk of the East Sussex County Council; Mr. L.G. Bullock, O.B.E., Deputy Regional Director of Civil Defence; Mr. J.W. Pugsley, Regional Controller, Ministry of Agriculture, Fisheries and Food, and Mr. F.H. Hall, Regional Food Defence Officer.

- "Civil Defence" Vol. 10 No. 6, June, 1958.

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NUTRITIONAL BASIS FOR EMERGENCY FEEDING

(Recommended by the Canadian Council on Nutrition, the nutrition advisory body to the Department of National Health and Welfare, 1957).

1. PRINCIPLES

- (a) Only WATER can be regarded as essential for survival during the first few days of an emergency. For infants it is a critical need within a few hours. At least one quart of safe water per person per day must be available.

- (b) About 400 Calories daily from carbohydrates such as sugar has a physiological advantage to the body, by its sparing effect on protein, especially when water is scarce.
- (c) If the intake of CALORIES is low, effort of any kind will likely be restricted by the people concerned. Therefore feeding must be related to the work being performed or expected.
- (d) After water and calories are provided, no nutrient has a special claim for attention for 3 to 4 weeks except PROTEIN which must be considered for certain groups - infants under 2 years, casualties, expectant and nursing mothers.

2. FOOD SUPPLIES

The flow of food supplies into any disaster area and its environs is a particularly important consideration under the threat of widespread destruction and of vast areas closed due to fallout at several places simultaneously in Canada. It can not be safely assumed that food supplies can be moved safely and easily from one area to another. Special plans must be made so that food supplies will begin to move into disaster areas immediately or feeding operations will soon come to an abrupt halt.

3. WATER

One quart of safe water per person per day, and more if possible, must be available under all circumstances. Such water must be free from contamination - both bacterial and radiation - or must have been rendered safe by chlorination or other approved methods.

4. CALORIE LEVELS IN FOODS AS EATEN

Immediately following a disaster

- (a) Infants - 110 calories per kilogram (45 to 50 cal./lb.).
- (b) Casualties - Many casualties should receive the regular calorie levels of evacuees (see below, 1800 - 3500 calories) supplemented as indicated by protein sources, which will provide some extra calories.

- (c) Survivors in shelters - being restricted in movement, while awaiting clearance for fallout, 800 calories per day for each person, in addition to the quart of water per person per day would suffice for 4 or 5 days.
- (d) People on Special Diets - Patients suffering from diabetes, ulcers, colitis, radiation, burns, etc., should be passed through a medical clinic remote from the emergency area and accorded whatever foods are ordered.

From fourth day to three weeks

- (a) Essential workers - engaged in hard physical work (e.g. rescue) will require adequate meals. They should receive at least 3500 calories per day.

- engaged in sedentary work, office work, light work should receive from 1800 to 3000 calories per day.

- (b) Evacuees - normal, healthy, uninjured persons

Engaged in light work, and including expectant and nursing mothers - 2200 to 3500 calories.

Sedentary - 1800 calories.

Children, from 1 year to 10 years - 1200 to 1800 calories.

On Special Diets - as ordered by medical clinic.

- (c) Prolonged Emergency - more than three weeks

For a prolonged period of emergency feeding, steps must be taken to assess the complete adequacy of the rations. Weighing people at intervals or quick physical examinations would reveal any significant caloric shortage. Blood and urine analyses reveal current supplies and reserves of essential nutrients.

5. PROTEIN LEVELS

Immediate emergency period and up to three weeks

- (a) Infants have special needs for protein at a rate of at least 1.5 grams per kilogram (or 0.7 grams per pound) for the first few weeks.

- (b) Expectant and nursing mothers also require protein at a rate of from 10 grams to 20 grams per day above the ordinary requirement (total 70 to 90 grams daily).
- (c) Casualties and sick persons - Most will have special needs for protein to a total of 100 grams or more daily.
- (d) Evacuees and essential workers have no critical needs for protein if meals of reasonable balance and frequency are being supplied. A level of at least 35 grams protein per day should be provided.
- (e) In shelters, with restricted activity, a survival ration of carbohydrate, such as a starch jelly, would be suitable even though it contained little or no protein.

6. PROLONGED EMERGENCY

With the gradual return to normal conditions, the objective should be to reach and maintain the protein levels listed in the Canadian Dietary Standard.

7. OTHER NUTRIENTS

Prolonged Emergency

The objective should be to reach and maintain all the levels listed in the Canadian Dietary Standard.

8. CONDITIONS OF FEEDING

Varying conditions for feeding or catering with respect to work, fuel, water and equipment, as well as the basis of individuals, families or groups, make it unrealistic to specify precise menus or methods. In fact, the important thing to emphasize is that safe water and some kind of food are critical necessities for the life of some people, and for the ability to work and the morale of all people. Acceptable presentation of food so that it is eaten can be as important as its nutritive value.

9. INTERPRETATION

Interpretation of the nutritional and feeding principles by trained and experienced people is desirable and perhaps essential.

Produced by
Information Services Division
Department of National Health and Welfare
for Civil Defence
by Authority of the Minister
The Honourable J. Waldo Monteith

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Printed by Departmental Secretary's Division

